Application Serial No: 10/530,949
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IN THE CLAIMS

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An area image sensor comprising:

a plurality of image pick-up elements arranged in a matrix including a plurality of element rows and a plurality of element columns;

a plurality of signal lines allocated to a respective one of the element columns;

~~and~~

a plurality of A/D converters connected to the signal lines, respectively;

a plurality of address lines each connected to the image pick-up elements of a respective one of the element rows; and

an address line selection circuit connected to the address lines and configured to select plural ones of the address lines simultaneously;

wherein each of the image pick-up elements belonging to said one of the element columns is connected to only one of the signal lines, and wherein each of the signal lines is connected to at least one of the image pick-up elements belonging to said one of the element columns.

2. (Original) The sensor according to claim 1, wherein each of the image pick-up elements comprises a photoelectric conversion element, and a switching element connected to the photoelectric conversion element.

3. (Currently Amended) The sensor according to claim 1, wherein two adjacent image pick-up elements belonging to said one of the element columns are connected to different ones of the signal lines.

4. (Cancelled)

5. (Original) The sensor according to claim 1, further comprising a shift register connected to the A/D converters.

6. (Currently Amended) An area image sensor including a plurality of image pick-up elements arranged in a plurality of columns and a plurality of rows, the area image sensor comprising:

a plurality of signal lines allocated to a respective one or two of the columns of the image pick-up elements; ~~and~~

A/D converters connected to the signal lines, respectively;

a plurality of address lines each of which is allocated to a respective one of the rows of the image pick-up elements and connected to all the image pick-up elements of the row; and

an address line selection circuit for selecting plural ones of the address lines simultaneously;

wherein small groups each consisting of successive image pick-up elements are defined in each of the columns of the image pick-up elements, the number of the image pick-up elements included in each of the small groups corresponding to the number of the signal lines allocated to the column, the image pick-up elements included in each of the small groups being connected to different signal lines from each other;

wherein large groups each consisting of at least two successive small groups are defined in each of the columns of the image pick-up elements, and wherein, in each of the large groups, there are at least two connection patterns of the image pick-up elements to the signal lines on a small group basis.

7. (Original) The area image sensor according to claim 6, wherein, in each of the columns of the image pick-up elements, the number of the small groups included in each of the large groups is powers of 2.

8. (Original) The area image sensor according to claim 6, wherein, two or more kinds of large groups differing from each other in number of the small groups included therein are defined in each of the columns of the image pick-up elements.

9. (Currently Amended) The area image sensor according to claim 6, further comprising ~~address lines each of which is allocated to a respective one of the rows of the image pick-up elements and connected to all the image pick-up elements of the row, an address line selection circuit for selecting plural ones of the address lines simultaneously,~~ a shift register for taking in digital signals outputted from each of the A/D converters and outputting the digital signals through a plurality of transfer lines, and a duplexer circuit or a multiplexer circuit for switching the transfer lines for outputting the digital signals.

10. (Original) The area image sensor according to claim 6, wherein the A/D converter compares an inputted signal voltage with a predetermined reference voltage and outputs, to the shift register, a count value when the both voltages correspond to each other as a digital signal.